

Patent Claims

1. An electrical switching arrangement (1) having
- an electromagnetic relay (4),
 - 5 - a switching device (5), whose outputs (A1, A2) are arranged parallel to one contact (4a) of the electromagnetic relay (4), and
 - a control arrangement (2) which is connected to the coil (4b) of the electromagnetic relay (4) and
 - 10 the switching device (5),
- characterized in that
- a voltage detection device (6) is arranged between the control arrangement (2) and the coil (4b) of the electromagnetic relay (4), said voltage detection
- 15 device (6)
- instructing, in the event of a switch-on command being emitted by the control arrangement (2), a downstream drive unit (7) to emit a switching signal (S1) which short-circuits the switching
 - 20 device (5) on the output side,
 - maintaining, when the switch-on command is ended, the switching signal (S1) until the contact (4a) of the electromagnetic relay (4) is opened, and
 - instructing, in the event of there being no
 - 25 switch-on command, the drive unit (7) to emit a second switching signal (S2) which opens the switching device (5) on the output side.
2. The electrical switching arrangement (1) as
- 30 claimed in claim 1,
- characterized in that
- the voltage detection device (6) has a rectifier circuit (13) which is connected on the input side to the control arrangement (2) and the coil (4b) of the
- 35 electromagnetic relay (4) and is connected on the output side to the drive unit (7) via a comparator (13).

3. The electrical switching arrangement (1) as claimed in claim 2, characterized in that a voltage is continuously applied to one input (15) of the comparator (13).

4. The electrical switching arrangement (1) as claimed in one of the preceding claims, characterized in that the drive unit (7) has two signal conversion elements (16, 17) driven in phase opposition in such a way that in each case one signal conversion element (16, 17) is active and one signal conversion element (16, 17) is inactive.

5. The electrical switching arrangement (1) as claimed in claim 4, characterized in that the outputs of the respectively inactive signal conversion element (16, 17) are short-circuited via the respectively active signal conversion element (16, 17).

6. The electrical switching arrangement (1) as claimed in claim 4 or 5, characterized in that the signal conversion elements (16, 17) are voltage transformers.

7. The electrical switching arrangement (1) as claimed in claim 4 or 5, characterized in that the signal conversion elements (16, 17) are photovoltaic generators.

8. The electrical switching arrangement (1) as claimed in one of the preceding claims, characterized in that the switching device (5) has at least one MOS transistor.

9. The electrical switching arrangement (1) as claimed in one of the preceding claims, characterized in that the switching device (5) operates bi-directionally.